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SERIAL NUMBER	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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07/852,710 03/17/92 MORISHITA

M 35.C8301

LOKE, S	EXAMINER
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E5M1/1129

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277 PARK AVENUE
NEW YORK, NY 10172

ART UNIT	PAPER NUMBER
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2508

DATE MAILED: 11/29/93

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

☒ This application has been examined ☒ Responsive to communication filed on 8/9/93 ☐ This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s), _____ days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

- | | |
|---|---|
| 1. <input type="checkbox"/> Notice of References Cited by Examiner, PTO-892. | 2. <input type="checkbox"/> Notice of Draftsman's Patent Drawing Review, PTO-948. |
| 3. <input type="checkbox"/> Notice of Art Cited by Applicant, PTO-1449. | 4. <input type="checkbox"/> Notice of Informal Patent Application, PTO-152. |
| 5. <input type="checkbox"/> Information on How to Effect Drawing Changes, PTO-1474. | 6. <input type="checkbox"/> _____ |

Part II SUMMARY OF ACTION

1. ☒ Claims 1, 3-5, 7-8, 11, 14-41 are pending in the application.
Of the above, claims _____ are withdrawn from consideration.
2. ☒ Claims 2, 6, 9-10, 12-13 have been cancelled.
3. ☐ Claims _____ are allowed.
4. ☒ Claims 1, 3-5, 7-8, 11, 14-41 are rejected.
5. ☐ Claims _____ are objected to.
6. ☐ Claims _____ are subject to restriction or election requirement.
7. ☐ This application has been filed with Informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.
8. ☐ Formal drawings are required in response to this Office action.
9. ☐ The corrected or substitute drawings have been received on _____. Under 37 C.F.R. 1.84 these drawings are ☐ acceptable; ☐ not acceptable (see explanation or Notice of Draftsman's Patent Drawing Review, PTO-948).
10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on _____, has (have) been ☐ approved by the examiner; ☐ disapproved by the examiner (see explanation).
11. ☒ The proposed drawing correction, filed 8/9/93, has been ☒ approved; ☐ disapproved (see explanation).
12. ☐ Acknowledgement is made of the claim for priority under 35 U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. _____; filed on _____.
13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.
14. ☐ Other

3528301

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12/1/93

EXAMINER'S ACTION

07/852710

The following is a quotation of the first paragraph of 35 U.S.C. § 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The specification is objected to under 35 U.S.C. § 112, first paragraph, as the specification, as originally filed does not provide support for the invention as is now claimed. The detailed description discloses an n-channel transistor comprises a p⁺ type channel, an n type channel and an n- type channel formed between the n⁺ type source and drain regions and on a p type substrate in page 25, lines 15-20 and fig.15. However, the detailed description never discloses a first channel area, a second channel area, a third channel area, and a fourth channel area formed between the source and drain regions as claimed in claims 11 and 31.

The specification only discloses the impurity concentration of the n- area [1002] is very low (for example, less than 10^{15} cm^{-3}) in page 25, lines 2-6. However, the specification never discloses the impurity concentration of the n type area 1002' and n-type 1002 is not greater than 10^{17} cm^{-3} as claimed in claims 27 and 30.

The specification failing to provide an adequate written

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description of the invention. The detailed description discloses the n- area 1002 and the n area 1002' are both entirely depleted and may be positioned inversely in page 25, lines 15-20. However, the description never explains why the n- area and n area may be positioned inversely. It is unclear whether the transistor would operated normally if region 1002 is n instead of n- as claimed in claims 22 and 33.

The specification also never explains the advantage to have a steeper electric field in the p+ n region.

The specification also never discloses when a voltage is applied to the gate, a potential distributed in the channel region is higher, and a carrier flows at a position distant from an interface between the insulating layer and the first channel area by a distance longer than a mean free path of the carrier as claimed in claims 23 and 34.

Claims 11 and 21-41 are rejected under 35 U.S.C. § 112, first paragraph, for the reasons set forth in the objection to the specification.

Claims 1, 3-5, 7-8 and 14-20 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, line 21, it is unclear what is an electrically neutral area.

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Serial No. 952,710

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Art Unit 2508

Claim 1 would be allowable if rewritten or amended to overcome the rejection under 35 U.S.C. § 112.

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Any inquiry concerning this communication should be directed to Examiner Loke at telephone number (703) 302-4920.

Loke/ab
November 22, 1993

William Mintel

**WILLIAM MINTEL
PRIMARY EXAMINER
GROUP AU 258**

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